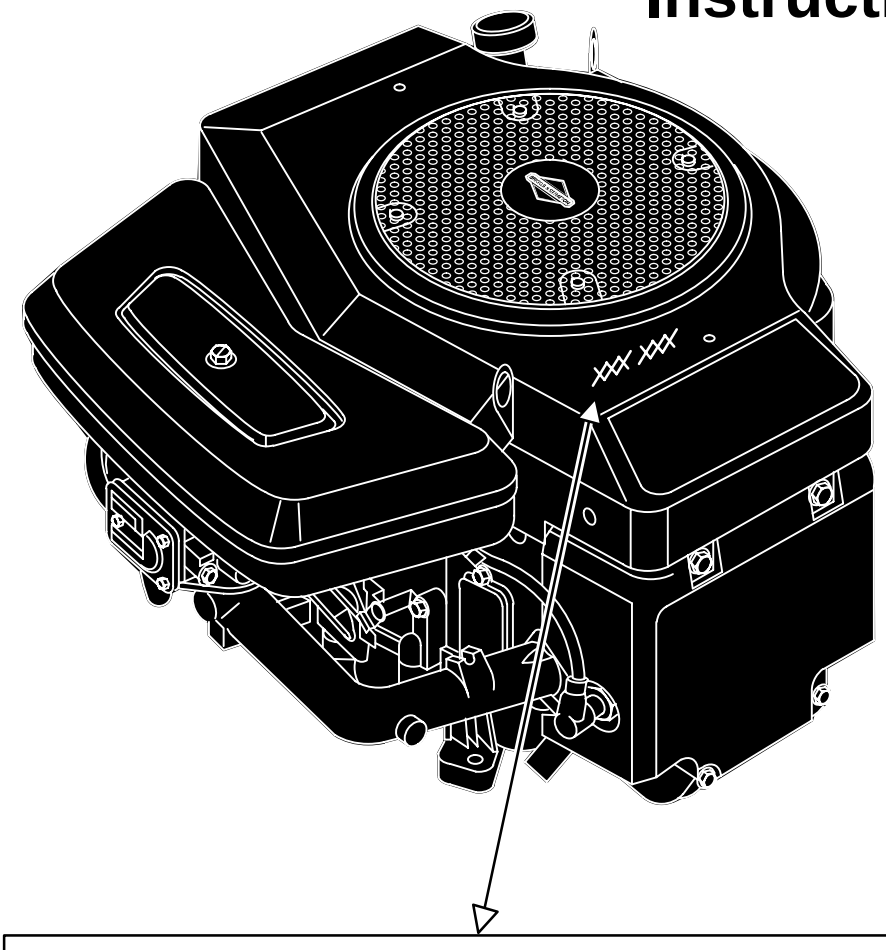
Operating & Maintenance Instructions

Model Series Covered in This Manual

42A700
42B700
42D700
42E700
422700
460700
461700



Model	Type	Code

Note: General Model Series numbers noted above include many specific numbers like the ones on your engine. To get replacement parts or technical assistance in the future, write your engine Model, Type, Code and date of purchase here.

Month	Day	Year

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⚠ WARNING

Briggs & Stratton does not approve or authorize the use of these engines on 3-wheel All Terrain Vehicles (ATVs), motor bikes, aircraft products or vehicles intended for use in competitive events. Use of these engines in such applications could result in property damage, serious injury (including paralysis), or even death.

In the USA and Canada our 24 hour hotline is
1-800-233-3723
Briggs & Stratton Corporation
Milwaukee, Wisconsin 53201
www.briggsandstratton.com

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FORM NO. 274279-10/99

THE POWER IN POWER EQUIPMENT™

Thank you for selecting a Briggs & Stratton engine to power your equipment.

Briggs & Stratton is committed to producing a line of engines which will make your life's chores easier to perform. We have, at the same time, improved the design of our engines so they are environmentally friendly. Since 1995, we have succeeded in reducing smog-forming exhaust emissions from our engines by 70%. Briggs & Stratton's efforts have not stopped there. We are also committed to designing and introducing even cleaner engines in the future, while maintaining our reputation for excellent utility and value.

Briggs & Stratton's environmental awareness has resulted in the engineering of the "Smart-Fill®" gas can, featuring a spill resistant nozzle which opens only when fully inserted into the gas tank, and which shuts off automatically when the tank is full. Because refueling spills can harm the environment, the Smart-Fill® container helps preserve a stronger ecosystem by reducing this source of pollution.

We hope you will enjoy your new engine and equipment. We welcome you to our worldwide family of Briggs & Stratton engine users.

Best Wishes Always,

The Employees of Briggs & Stratton Corporation

BEFORE OPERATING ENGINE

- Read entire Operating & Maintenance Instructions AND the instructions for the equipment this engine powers.*
- Failure to follow instructions could result in serious injury or death.

THE OPERATING & MAINTENANCE INSTRUCTIONS CONTAIN SAFETY INFORMATION TO

- Make you aware of hazards associated with engines
- Inform you of the risk of injury associated with those hazards, and
- Tell you how to avoid or reduce the risk of injury.

The safety alert symbol (⚠) is used to identify safety information about hazards that can result in personal injury.

A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

⚠ **DANGER** indicates a hazard which, if not avoided, **will result in death or serious injury.**

⚠ **WARNING** indicates a hazard which, if not avoided, **could result in death or serious injury.**

⚠ **CAUTION** indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION, when used **without** the alert symbol, indicates a situation that **could result in damage to the engine.**

HAZARD SYMBOLS AND MEANINGS

Fire

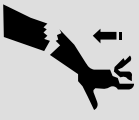
Moving Parts

Explosion

Shock

Toxic Fumes

Hot Surface


Kickback

⚠ WARNING ⚠

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

* Briggs & Stratton does not necessarily know what equipment this engine will power. For that reason, you should carefully read and understand the operating instructions for the equipment on which your engine is placed.

SAFETY

WARNING

Gasoline and its vapors are extremely flammable and explosive.

Fire or explosion can cause severe burns or death.

WHEN ADDING FUEL

- Turn engine OFF and let engine cool at least 2 minutes before removing gas cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank. Fill tank to approximately 1-1/2 inches below top of neck to allow for fuel expansion.
- Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

WHEN STARTING ENGINE

- Make sure spark plug, muffler, fuel cap and air cleaner are in place.
- Do not crank engine with spark plug removed.
- If fuel spills, wait until it evaporates before starting engine.
- If engine floods, set choke to OPEN/RUN position, place throttle in FAST and crank until engine starts.

WHEN OPERATING EQUIPMENT

- Do not tip engine or equipment at angle which causes gasoline to spill.
- Do not choke carburetor to stop engine.

WHEN TRANSPORTING EQUIPMENT

- Transport with fuel tank EMPTY or with fuel shut-off valve OFF.

WHEN STORING GASOLINE OR EQUIPMENT WITH FUEL IN TANK

- Store away from furnaces, stoves, water heaters or other appliances that have pilot light or other ignition source because they can ignite gasoline vapors.

WARNING

Unintentional sparking can result in fire or electric shock.

Unintentional start-up can result in entanglement, traumatic amputation, or laceration.

BEFORE PERFORMING ADJUSTMENTS OR REPAIRS

- Disconnect spark plug wire and keep it away from spark plug.
- Disconnect battery at negative terminal (only engines with electric start).

WHEN TESTING FOR SPARK

- Use approved spark plug tester.
- Do not check for spark with spark plug removed.

WARNING

Starting engine creates sparking.

Sparking can ignite nearby flammable gases.

Explosion and fire could result.

- If there is natural or LP gas leakage in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.

WARNING

Engines give off carbon monoxide, an odorless, colorless, poison gas.

Breathing carbon monoxide can cause nausea, fainting or death.

- Start and run engine outdoors.
- Do not start or run engine in enclosed area, even if doors or windows are open.

WARNING

Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.

Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated combustibles from muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.

WARNING

Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories.

Traumatic amputation or severe laceration can result.

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.

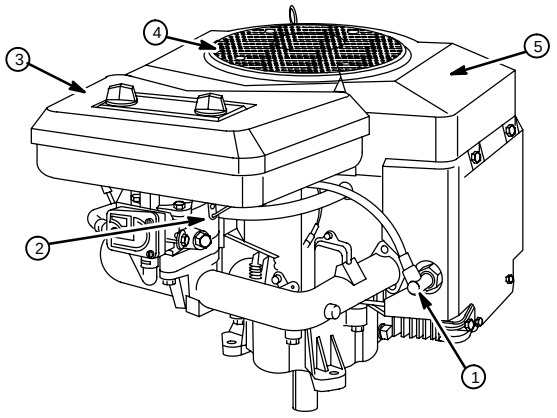
WARNING

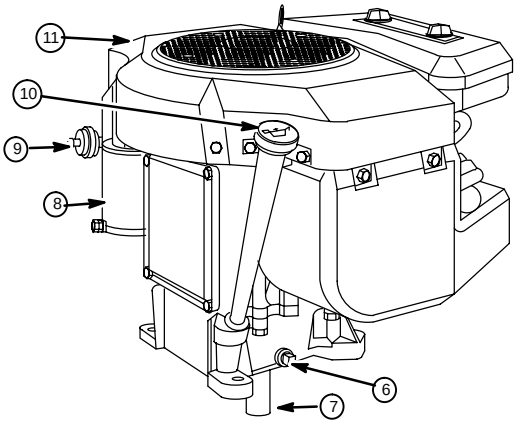
Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go.

Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull cord slowly until resistance is felt, then pull rapidly.
- Remove all external equipment/engine loads before starting engine.
- Direct coupled equipment components such as, but not limited to, blades, impellors, pulleys, sprockets, etc., must be securely attached.

ENGINE PARTS





1. Spark plug wire
2. Carburetor
3. Air cleaner
4. Rotating screen
5. Emission label and Engine

Model	Type	Code	label
xxxxxx	xxxx xx	xxxxxxxx	

6. Oil drain plug
7. Crankshaft
8. 12V electric starter
9. Fuel filter
10. Oil fill/Dipstick
11. Blower housing

GENERAL INFORMATION

ENGINE MODEL

This is a twin cylinder, overhead valve (OHV), air-cooled engine. It is a low emissions engine.

MODEL SERIES 420000

Bore . . . . . 3-7/16 in. (87.31 mm)
Stroke . . . . . 2-9/32 in. (57.94 mm)
Displacement . . . . . 42.33 cu. in. (694.0 cc)

MODEL SERIES 460000

Bore . . . . . 3-7/16 in. (87.31 mm)
Stroke . . . . . 2-15/32 in. (62.48 mm)
Displacement . . . . . 45.64 cu. in. (748.0 cc)

Note: For practical operation, the horsepower loading should not exceed 85% of rated horsepower. Engine power will decrease 3-1/2% for each 1,000 feet (300 meters) above sea level and 1% for each 10° F (5.6° C) above 77° F (25° C). It will operate satisfactorily at an angle up to 15°.

TUNE-UP SPECIFICATIONS

Armature air gap . . . 0.010 – 0.014 in. (0.25 – 0.36 mm)
Spark plug gap . . . . . 0.030 in. (0.76 mm)

Valve clearance with valve springs installed and piston 1/4 in. (6 mm) past top dead center (check when engine is cold). See Repair Manual P/N 271172.

Intake . . . . . 0.006 – 0.008 in. (0.15 – 0.20 mm)
Exhaust . . . . . 0.009 – 0.011 in. (0.23 – 0.28 mm)

THE INTERNATIONAL SYMBOLS USED ON THE ENGINE OR IN THIS MANUAL INCLUDE:

OIL

CAUTION: This engine is shipped from Briggs & Stratton **without oil**. Check oil level before starting engine. If you start the engine without oil, the engine will be damaged beyond repair and will not be covered under warranty.

OIL CAPACITY

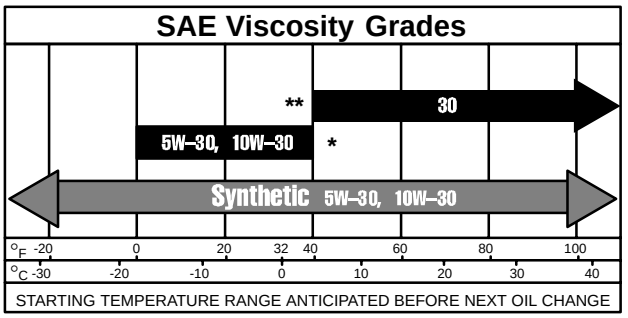
Engine without oil filter holds approximately 1-1/2 quarts (48 ounces; 1.4 liter).

Engine equipped with oil filter holds approximately 1-3/4 quarts (56 ounces; 1.7 liters).

TYPE OF OIL TO USE

- Use a high quality detergent oil classified “For Service SF, SG, SH, SJ” or higher, such as Briggs & Stratton 30W, Part Number 100005 (20 oz) or 100028 (48 oz).
- Do not use special additives.
- Choose a viscosity according to the table opposite.

Note: Synthetic oil meeting ILSAC GF-2, API certification mark and API service symbol (shown at left) with “SJ/CF ENERGY CONSERVING” or higher, is an acceptable oil at all temperatures. **Use of synthetic oil does not alter required oil change intervals**.

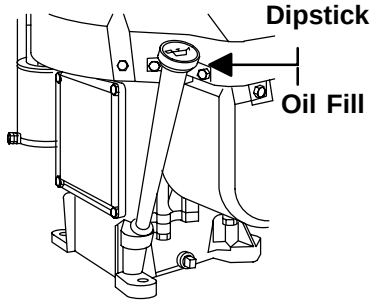

SAE Viscosity Grades
**
30
5W–30, 10W–30
*
Synthetic 5W–30, 10W–30
°F -20 0 20 32 40 60 80 100
°C -30 -20 -10 0 10 20 30 40
STARTING TEMPERATURE RANGE ANTICIPATED BEFORE NEXT OIL CHANGE

* **CAUTION:** Air cooled engines run hotter than automotive engines. The use of non-synthetic multi-viscosity oils (5W-30, 10W-30, etc.) in temperatures above 40° F (4° C) will result in higher than normal oil consumption. When using a multi-viscosity oil, check oil level more frequently.

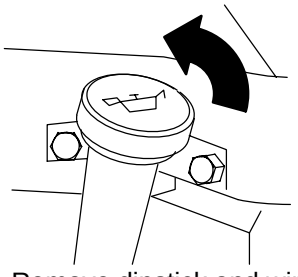
** **CAUTION:** SAE 30 oil, if used below 40° F (4° C), will result in hard starting and possible engine bore damage due to inadequate lubrication.

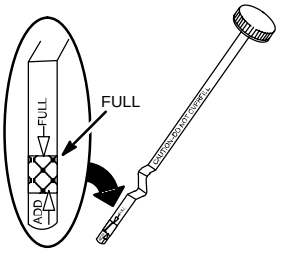
CHECKING AND ADDING OIL

- Check oil level *before* starting the engine.
- Check level daily, or after every eight (8) hours.
- Keep oil level at FULL.
- Do not overfill.



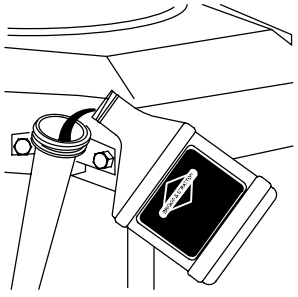
[1] Place engine level. Clean around oil fill and dipstick.



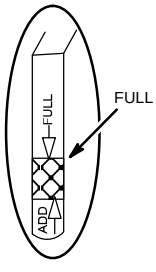


[2] Remove dipstick and wipe clean with cloth.

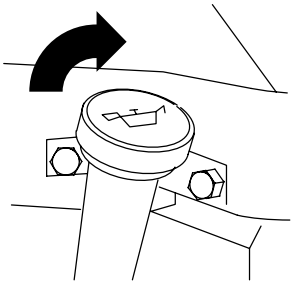
[3] Then push dipstick back in and remove to check oil level.



[4] Remove dipstick. Pour oil slowly.



[5] Fill to FULL line on dipstick – recheck.



[6] Replace dipstick firmly.

FUEL

TYPE OF FUEL TO USE

- Use clean, fresh, regular unleaded gasoline with a minimum of 77 octane. Fresh fuel prevents gum from forming in the fuel system or on essential carburetor parts. Purchase fuel in quantity that can be used within 30 days.
- Do not use gasoline which contains Methanol.
- Do not mix oil with gasoline.
- For engine protection use Briggs & Stratton Gasoline Additive available from your Authorized Briggs & Stratton Dealer (P/N 5041 or single use pouch).
- This engine is certified to operate on gasoline. Exhaust Emission Control System: EM (Engine Modifications).

CAUTION: Some fuels, called oxygenated or reformulated gasoline, are gasoline blended with alcohols or ethers. Excessive amounts of these blends can damage the fuel system or cause performance problems. If any undesirable operating symptoms occur, use gasoline with a lower percentage of alcohol or ether.

ADDING FUEL

WARNING

[1] Fill fuel tank outdoors or in well-ventilated area, away from sparks, open flames, pilot lights, heat, and other ignition sources.

[2] If fuel spills, wait until it evaporates before starting engine.

[3] Turn engine OFF and let engine cool at least 2 minutes before removing gas cap.

[4] Remove cap. Fill tank to approximately 1-1/2 inches below top of neck to allow for fuel expansion. Be careful not to overfill.
Briggs & Stratton ***Smart-fill***® **fuel can** fills to the correct level and automatically shuts off, reducing spills and emissions.

[5] Replace cap before starting.

STARTING

WARNING

- Do not use pressurized starting fluids.
- Vapors are flammable.

OIL PRESSURE SWITCH

If engine is equipped with an oil pressure switch, the switch will either activate a warning device or stop the engine when the engine runs low on oil. (Read the operating instructions supplied by the equipment manufacturer to determine which way your engine is equipped because the equipment manufacturer supplies the oil pressure gauge.)

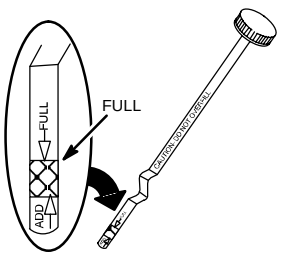
See **oil pressure** on page 12 for oil filling instructions.

STARTING AND OPERATING TIPS

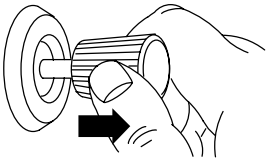
- Store and fuel equipment in level position.
- Use fresh fuel. (See Fuel.)
- Use correct type of oil for expected starting temperature. (See Oil.)
- Remove external equipment/engine loads. (See equipment operating instructions.)
- Start lawn mower on hard surface or over previously cut grass.
- Periodically remove grass buildup under mower deck. (See Maintenance.)
- After engine has started, let it warm up several seconds to several minutes, depending on outside temperature.
- For maximum performance and life, operate engine with choke in RUN and throttle in FAST.

REWIND (MANUAL) STARTER

TO START ENGINE



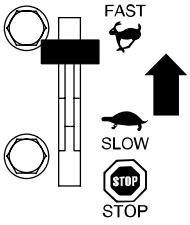
[1] Check oil level (see p. 7).



Choke

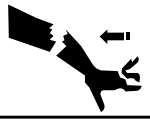
[2] Open fuel shut-off valve (if equipped).

[3] Move choke control to CHOKE or START.

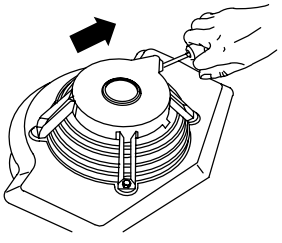


[4] Move throttle to FAST (if equipped). Operate engine with throttle in FAST.

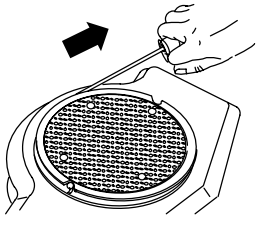
WARNING



[5] Grasp rope handle. Pull slowly until resistance is felt, then pull rapidly to start engine and avoid kickback.



Rewind starter

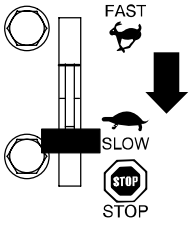


Rope starter

[6] Let engine warm up. **Choke Equipped:** Move choke control lever toward RUN a short distance at a time over several seconds in warm weather or minutes in cold weather. Let engine run smoothly before each change. Operate with choke in RUN.

TO STOP ENGINE

CAUTION: Do not stop engine by moving choke control to CHOKE. Backfire, fire or engine damage could occur.



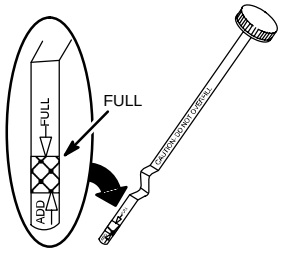
[1] Move throttle (if equipped) to SLOW, then to STOP.

[2] Close fuel shut-off valve (if equipped).

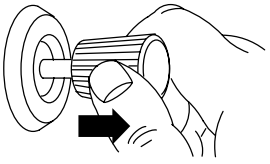
STARTING AND STOPPING

ELECTRIC (KEY) STARTER (if equipped)

TO START ENGINE



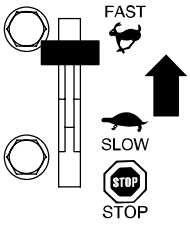
[1] Check oil level.



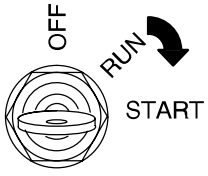
Choke

[2] Open fuel shut-off valve (if equipped).

[3] Move choke control to CHOKE or START.



[4] Move throttle to FAST (if equipped). Operate engine with throttle in FAST.

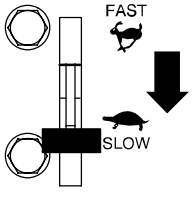


[5] Insert key and turn to START.

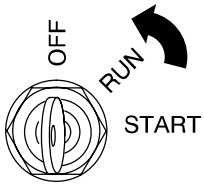
CAUTION: To prolong starter life, use short starting cycles (5 seconds maximum, then wait one minute). Follow equipment manufacturer's recommendations for charging battery.

[6] Let engine warm up. **Choke Equipped:** Move choke control lever toward RUN a short distance at a time over several seconds in warm weather or minutes in cold weather. Let engine run smoothly before each change. Operate with choke in RUN.

TO STOP ENGINE



[1] Move throttle (if equipped) to SLOW.



[2] Turn key to OFF. Remove key and store out of reach of children.

[3] Close fuel shut-off valve (if equipped).

MAINTENANCE

Regular maintenance will improve the performance and extend the life of the engine. See any Authorized Briggs & Stratton Dealer for service. **Use only genuine Briggs & Stratton parts. Other parts may not perform as well, may damage the engine, and may result in injury.** In addition, use of other parts may void your warranty.

EMISSION CONTROL

Maintenance, replacement or repair of the emission control devices and systems may be performed by any nonroad engine repair establishment or individual. However, to obtain no charge repairs under the terms and provisions of the Briggs & Stratton warranty statement, any service or emission control part repair or replacement must be performed by a factory authorized dealer.

Follow the instructions and schedules indicated below.

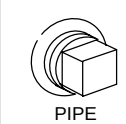
Task *Perform task at hourly or calendar interval, whichever comes first.*	Every 8 Hours or Daily	25 Hours or Every Season	50 Hours or Every Season	100 Hours or Every Season	100-300 Hours
Check oil Level	✓				
Change oil			✓*		
Change oil filter (if equipped)				✓	
Service air cleaner pre-cleaner (if equipped)		✓**			
Service air cleaner cartridge (if not equipped with pre-cleaner)		✓**			
Service air cleaner cartridge (if equipped with pre-cleaner)				✓**	
Inspect spark arrester (if equipped)			✓		
Clean or replace spark plugs				✓	
Replace in-line fuel filter (if equipped)				✓	
Clean cooling system				✓**	
Clean combustion chamber					✓

* **Change oil after first 5 to 8 hours of use**, then every 50 hours or every season. Change oil every 25 hours when operating the engine under heavy load or in high temperatures.

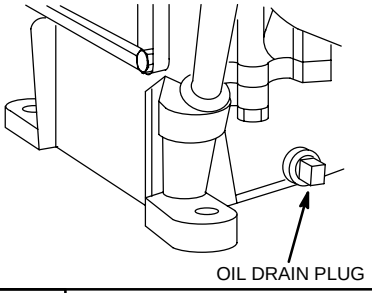
** Clean more often under dusty conditions or when airborne debris is present. Replace air cleaner parts, if very dirty.

CAUTION: Used oil is a hazardous waste product. Dispose of used oil properly. Do not discard with household waste. Check with your local authorities, service center, or dealer for safe disposal/recycling facilities.

CHANGING OIL



Typical drain plug



WARNING

[1] Place engine level.

[2] Disconnect spark plug wires and keep away from spark plugs. Disconnect battery (if equipped with electric starter) at negative terminal.

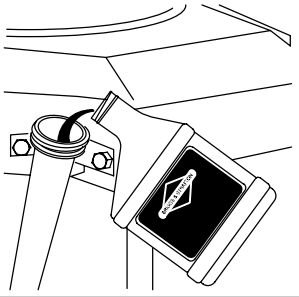
[3] With engine OFF but still warm remove oil drain plug and drain oil into appropriate receptacle.

[4] Reinstall drain plug. Remove dipstick.

[5] Fill to FULL mark on dipstick with new oil. **Do not overfill.**

Note: Engine without oil filter holds approximately 1-1/2 quarts (48 ounces; 1.4 liters). Engine equipped with filter holds approximately 1-3/4 quarts (56 ounces; 1.7 liters).

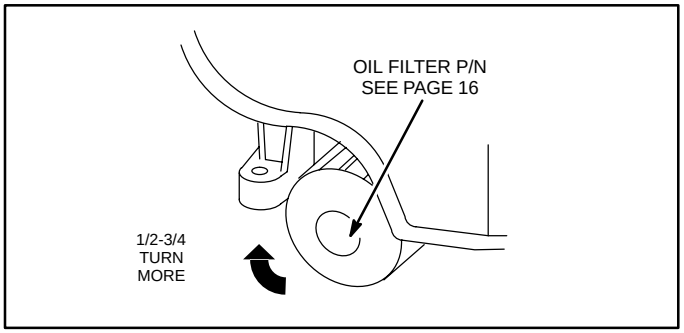
[6] Replace dipstick.



MAINTENANCE

CHANGING OIL FILTER

Change oil filter after every 100 hours.



[1] Drain engine oil and remove oil filter.

[2] Before installing new filter, lightly oil filter gasket with fresh, clean oil.

[3] Screw filter on by hand until gasket contacts oil filter adapter. Tighten 1/2 to 3/4 turn more.

[4] Add fresh oil. Fill to FULL line on dipstick.

[5] Start and run engine at idle to check for leaks.

[6] Stop engine. Re-check oil level. Add oil if required.

OIL PRESSURE

Normal warm operating oil pressure for a pressure lube engine (engine with oil filter) is 10 to 50 psi at normal operating temperature. If pressure drops below normal range, stop engine and check oil level with dipstick. If oil level is between **ADD** and **FULL** mark on dipstick, Do not restart engine. Contact an Authorized Briggs & Stratton Service Dealer. Do not operate engine until oil pressure is corrected.

If oil level is below **ADD** mark on dipstick, add oil to bring level to **FULL** mark. Restart engine and check oil pressure. If pressure is normal, continue to operate engine.

Note: Oil pressure gauge, if engine is equipped, is supplied by manufacturer of equipment.

AIR CLEANER

All engines have an oval air cleaner cartridge. In addition, some engines have a pre-cleaner.

CLEANING PRE-CLEANERS AND CARTRIDGES

CAUTION: Do not use pressurized air or solvents to clean cartridge. Pressurized air can damage cartridge; solvents will dissolve cartridge.

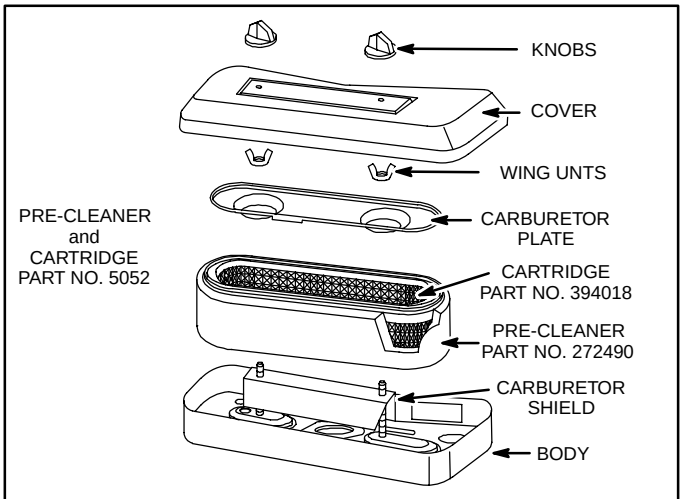
Pre-cleaner

To clean pre-cleaner (if equipped), separate it from cartridge and wash in liquid detergent and water. Squeeze dry in a clean cloth. Saturate in engine oil. Squeeze in clean, absorbent cloth to remove all EXCESS oil.

Cartridge

To clean cartridge, gently tap on a flat surface.

REMOVING/INSTALLING AIR CLEANER w/o TANK



Dual element air cleaner

[1] Remove knobs and cover.

[2] Slide pre-cleaner off cartridge.

[3] Remove wing nuts, and cartridge plate. Carefully remove cartridge to prevent debris from entering carburetor.

[4] Reinstall cartridge and cartridge plate. Tighten wing nuts securely.

[5] Reassemble pre-cleaner on cartridge.

[6] Replace cover and tighten knobs securely.

ENGINE AND ENGINE PARTS

We recommend that you see an authorized Briggs & Stratton Service Dealer for all maintenance and service of the engine and engine parts. Use only genuine Briggs & Stratton parts.

WARNING

If you perform any maintenance on the engine, first disconnect the spark plug wire from the spark plug, and disconnect the battery at the negative terminal (electric starter engines only) to prevent unintentional sparking. Unintentional sparking can result in fire or electric shock. Unintentional start-up can result in entanglement, traumatic amputation or laceration. Use only correct tools.

WARNING

- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.
- Do not tamper with governor spring, links or other parts to increase engine speed.

MUFFLER

WARNING

Replacement parts for the muffler must be the same and installed in the same position as the original parts, otherwise fire can occur.

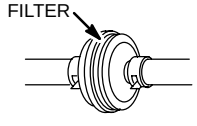
If muffler is equipped with spark arrestor screen, remove screen for inspection. Replace screen if damaged or plugged.

FUEL SYSTEM

WARNING

Replacement parts for fuel system (cap, hoses, tanks, filters, etc.) must be the same as original parts, otherwise fire can occur.

FUEL FILTER (if equipped)



WARNING

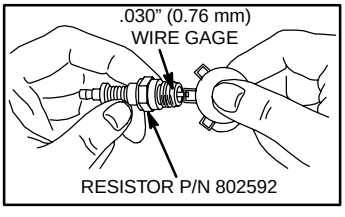
[1] Disconnect spark plug wires and keep away from spark plugs.

[2] Drain fuel tank or close fuel shut-off valve before replacing fuel filter. Otherwise, fuel can leak out, creating a fire/explosion hazard.

SPARK PLUG

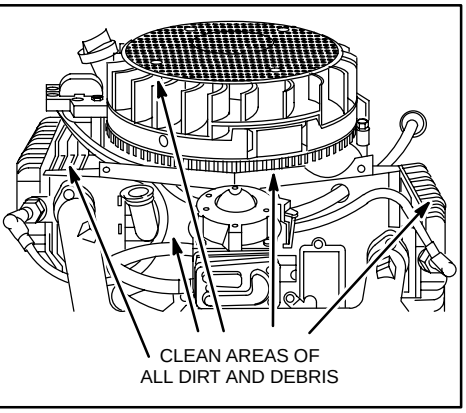
Use only Briggs & Stratton Spark Tester (part number 19368) to check for spark.

Note: In some areas, local law requires using resistor spark plug to suppress ignition signals. If this engine was originally equipped with resistor spark plug, use same type for replacement.



AIR COOLING SYSTEM

Debris may clog the engine's air cooling system. Remove blower housing and clean area shown to prevent overheating and engine damage.



MAINTENANCE

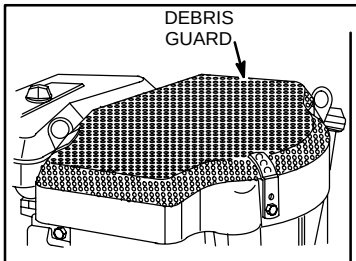
CLEANING DEBRIS

CAUTION: Do not use water to clean engine parts. Water could contaminate fuel system. Use a brush or dry cloth.

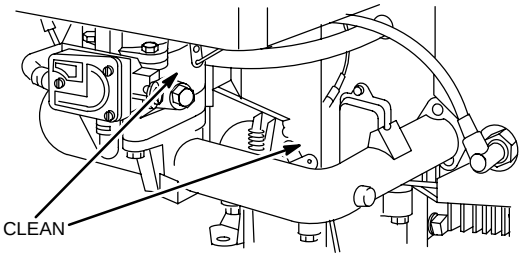
Daily or before every use, clean accumulated debris from engine. Keep linkage, springs and controls clean. Keep area around and behind muffler free of any combustible debris.

WARNING

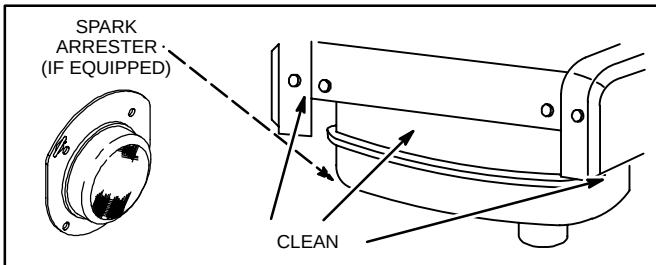
Engine parts should be kept clean to reduce the risk of overheating and ignition of accumulated debris. This is especially important if cutting tall grass.



Debris Guard or Rotating Screen



Linkage, Springs and Controls



Muffler and Spark Arrester

ADJUSTMENTS

CONTROL ADJUSTMENTS

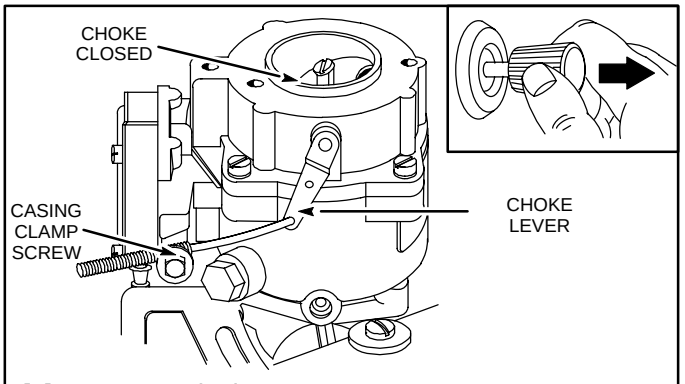
WARNING

Prevent unintentional starting.

Before performing adjustments:

- Remove spark plug wire from spark plug.
- Disconnect battery at negative terminal (only engines with electric start).

TO ADJUST REMOTE CHOKE CONTROL



[1] Remove air cleaner.

[2] Move choke control to CHOKE or START position. (Carburetor choke should be completely closed.)

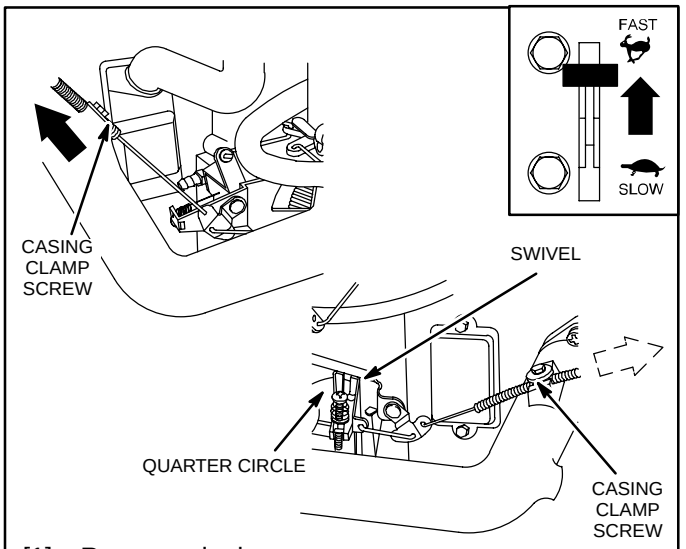
[3] If not, loosen casing clamp screw.

[4] Then move casing, wire and engine choke lever until choke is completely closed.

[5] Tighten casing clamp screw. Replace air cleaner.

TO ADJUST REMOTE THROTTLE CONTROL

If the engine does not start or if it runs roughly, the remote throttle control may need adjustment. See your authorized Briggs & Stratton dealer or follow the instructions below.



[1] Remove air cleaner.

[2] Move throttle control to FAST. (Swivel should be against side of quarter circle.)

[3] If not, loosen casing clamp screw. Move casing and wire in direction shown by arrow until swivel is against side of quarter circle.

[4] Tighten casing clamp screw. Replace air cleaner.

CARBURETOR ADJUSTMENT

WARNING

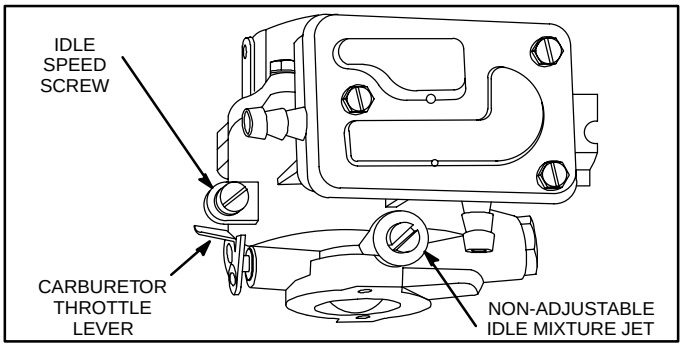
The manufacturer of the equipment on which this engine is installed specifies top speed at which the engine will be operated. DO NOT EXCEED this speed.

Differences in fuel, temperature, altitude or load may require minor carburetor adjustment. Air cleaner and air cleaner cover must be assembled to carburetor before starting engine.

The carburetor on this engine is low emission. It is equipped with an idle speed adjustment screw and a non-adjustable idle mixture valve.

Note: Engines operated at approximately 3000 to 5000 feet (900 to 1500 meters) above sea level may require a high altitude carburetor main jet. If erratic performance is observed, contact a Briggs & Stratton Authorized Service Dealer for cost to install/purchase a high altitude carburetor main jet.

TO ADJUST CARBURETOR



[1] Start engine and warm up approximately 5 minutes before adjusting.

[2] With engine running, place throttle control in SLOW position.

[3] Rotate carburetor throttle lever against the idle speed screw and hold it.

[4] Turn idle speed screw to obtain 1500 to 1600 rpm.

Note: Governed idle has been set to 1750 rpm at factory.

To purchase a complete list of Genuine Briggs & Stratton Parts for your engine, fill in both sides of this order form carefully. We cannot fill your order without the correct Engine Model/Type/Code. Allow 3 to 4 weeks for delivery.

Payment Method: Fill in both sides of this order form carefully

☐ Check or money order enclosed payable to **Briggs & Stratton Corporation** in the amount of $_____ (U.S. Dollars, please)

☐ Please charge my ☐ MasterCard ☐ VISA

CREDIT CARD NUMBER EXPIRATION DATE

SIGNATURE (REQUIRED FOR CREDIT CARD ORDERS)

Parts List $2.00

Shipping & Handling $1.50

****Add State Sales Tax** **AL 5%, CT 6%, FL 6.5%, GA 4%, KY 6%, MI 6%, MN 6%, MO 4.225%, NY 8.5%, OH 5%, TN 6%, TX 6.25%, WA 6.5%, WI 5%

Total

SERVICE & STORAGE

PARTIAL LIST OF GENUINE BRIGGS & STRATTON PARTS

PART	BRIGGS & STRATTON PART NO. (or equivalent)
Air cleaner cartridge	394018
Air cleaner pre-cleaner	272490
Air cleaner pre-cleaner and cartridge	5050
Oil	100005 or 100028
Oil filter (3-1/2 in. long)	491056
Oil filter (2-1/4 in. long)	492932 or 5049
Fuel filter (with fuel pump)	394358
Fuel filter (without fuel pump)	298090 or 5018
Gas additive	5041
Resistor spark plug	802592
Long life platinum spark plug (used on most L-head engines)	5062
Spark plug wrench	89838 or 5023
Spark tester	19368
Oil pump kit (uses standard electric drill to remove oil from engine quickly)	5056

Fill in both sides, clip and return to:
Briggs & Stratton Corporation
P.O. Box 1144
Milwaukee, WI 53201–1144 U.S.A.

Name_____

Address_____

City_____ **State**_____ **Zip**_____ **Country**_____

Your Engine Model | **Type** | **Code**

To purchase a complete list of Genuine Briggs & Stratton Parts for your engine, fill in both sides of this order form carefully. We cannot fill your order without the correct Engine Model/Type/Code. Allow 3 to 4 weeks for delivery.

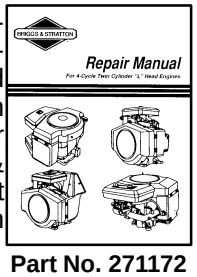
SERVICE

See an Authorized Briggs & Stratton Service Dealer. Each one carries a stock of Genuine Briggs & Stratton Parts and is equipped with special service tools. Trained mechanics assure expert repair service on all Briggs & Stratton engines. Only dealers advertising as “Authorized Briggs & Stratton” are required to meet Briggs & Stratton standards.

When you purchase equipment powered by a Briggs & Stratton engine, you are assured of highly skilled, reliable service at more than 30,000 Authorized Service Dealers worldwide, including more than 3,500 Master Service Technicians. Look for these signs wherever Briggs & Stratton service is offered.

You may locate your nearest Authorized Briggs & Stratton Service Dealer in our dealer locator map on our web site **www.briggsandstratton.com** or in the “Yellow Pages™” directory under “Engines, Gasoline” or “Gasoline Engines,” or “Lawn Mowers” or similar category.

An illustrated shop manual includes common specifications and detailed information covering adjustment, tune-up and repair of Briggs & Stratton L-head, twin cylinder, 4 cycle engines. It is available for purchase from an Authorized Briggs & Stratton Service Dealer or you can order it from the factory. Write: Briggs & Stratton Corporation, Attn: Service Division
P. O. Box 1144, Milwaukee, WI 53201



Part No. 271172

STORAGE

Engines stored over 30 days need special attention.

[1] To prevent gum from forming in fuel system or on essential carburetor parts:
a) if fuel tank contains oxygenated or reformulated gasoline (gasoline blended with an alcohol or an ether), run engine until it stops from lack of fuel, **or** b) if fuel tank contains gasoline, either run engine until it stops from lack of fuel, or add a gasoline additive to the gas in the tank. (See parts list. Single – use pouches of gas additive are available from your service dealer.) If you use a gas additive, run the engine for several minutes to circulate the additive through the carburetor. Then, engine and fuel can be stored up to 24 months.

[2] While engine is still warm, change oil.

[3] Remove spark plugs and pour about 1 oz. (30 ml) of engine oil into each cylinder. Replace spark plugs and crank slowly to distribute oil.

[4] Clean engine of surface debris, chaff or grass.

[5]

Store in a clean, dry area. Do not store in same area as a stove, furnace, water heater, or other appliance that uses a pilot light or has a device that can create a spark.

Briggs & Stratton Corporation (B&S), the California Air Resources Board (CARB) and the United States Environmental Protection Agency (U.S. EPA)
Emission Control System Warranty Statement (Owner's Defect Warranty Rights and Obligations)

EMISSION CONTROL WARRANTY COVERAGE IS APPLICABLE TO CERTIFIED ENGINES PURCHASED IN CALIFORNIA IN 1995 AND THEREAFTER, WHICH ARE USED IN CALIFORNIA, AND TO CERTIFIED MODEL YEAR 1997 AND LATER ENGINES WHICH ARE PURCHASED AND USED ELSEWHERE IN THE UNITED STATES.

California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (CARB), U.S. EPA and B&S are pleased to explain the Emission Control System Warranty on your model year 2000 and later small off-road engine (SORE). In California, new small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere in the United States, new non-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the U.S. EPA. B&S must warrant the emission control system on your engine for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

Your emission control system includes parts such as the carburetor, air cleaner, ignition system, muffler and catalytic converter. Also included may be connectors and other emission related assemblies.

Where a warrantable condition exists, B&S will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

Briggs & Stratton Emission Control Defects Warranty Coverage

Small off-road engines are warranted relative to emission control parts defects for a period of two years, subject to provisions set forth below. If any covered part on your engine is defective, the part will be repaired or replaced by B&S.

Owner's Warranty Responsibilities

As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Operating and Maintenance Instructions. B&S recommends that you retain all your receipts covering maintenance on your small off-road engine, but B&S cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the small off-road engine owner, you should however be aware that B&S may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your small off-road engine to an Authorized B&S Service Dealer as soon as a problem exists. The undisputed warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact a B&S Service Representative at 1-414-259-5262.

The emission warranty is a defects warranty. Defects are judged on normal engine performance. The warranty is not related to an in-use emission test.

Briggs & Stratton Emission Control Defects Warranty Provisions

The following are specific provisions relative to your Emission Control Defects Warranty Coverage. It is in addition to the B&S engine warranty for non-regulated engines found in the Operating and Maintenance Instructions.

1. Warranted Parts

   Coverage under this warranty extends only to the parts listed below (the emission control systems parts) to the extent these parts were present on the engine purchased.

   a. Fuel Metering System
      - Cold start enrichment system
      - Carburetor and internal parts
      - Fuel Pump

   b. Air Induction System
      - Air cleaner
      - Intake manifold

   c. Ignition System
      - Spark plug(s)
      - Magneto ignition system

   d. Catalyst System
      - Catalytic converter
      - Exhaust manifold
      - Air injection system or pulse valve

   e. Miscellaneous Items Used in Above Systems
      - Vacuum, temperature, position, time sensitive valves and switches
      - Connectors and assemblies

2. Length of Coverage

   B&S warrants to the initial owner and each subsequent purchaser that the Warranted Parts shall be free from defects in materials and workmanship which caused the failure of the Warranted Parts for a period of two years from the date the engine is delivered to a retail purchaser.

3. No Charge

   Repair or replacement of any Warranted Part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a Warranted Part is defective, if the diagnostic work is performed at an Authorized B&S Service Dealer. For emissions warranty service contact your nearest Authorized B&S Service Dealer as listed in the "Yellow Pages" under "Engines, Gasoline," "Gasoline Engines," "Lawn Mowers," or similar category.

4. Claims and Coverage Exclusions

   Warranty claims shall be filed in accordance with the provisions of the B&S Engine Warranty Policy. Warranty coverage shall be excluded for failures of Warranted Parts which are not original B&S parts or because of abuse, neglect or improper maintenance as set forth in the B&S Engine Warranty Policy. B&S is not liable to cover failures of Warranted Parts caused by the use of add-on, non-original, or modified parts.

5. Maintenance

   Any Warranted Part which is not scheduled for replacement as required maintenance or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period. Any Warranted Part which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs. The owner is responsible for the performance of all required maintenance, as defined in the B&S Operating and Maintenance Instructions.

6. Consequential Coverage

   Coverage hereunder shall extend to the failure of any engine components caused by the failure of any Warranted Part still under warranty.

In the USA and Canada, a 24 hour hot line, **1-800-233-3723,** has a menu of pre-recorded messages offering you engine maintenance information.

About your engine warranty: (see next page for statement of LIMITED WARRANTY).

Briggs & Stratton welcomes warranty repair and apologizes to you for being inconvenienced. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. For example, warranty would not apply if engine damage occurred because of misuse, lack of routine maintenance, shipping, handling, warehousing or improper installation. Similarly, warranty is void if the serial number of the engine has been removed or the engine has been altered or modified.

If a customer differs with the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the Factory for review. If the Distributor or the Factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding which might occur between the customer and the Dealer, listed below are some of the causes of engine failure that the warranty does not cover.

Normal wear:

Engines, like all mechanical devices, need periodic parts service and replacement to perform well. Warranty will not cover repair when normal use has exhausted the life of a part or an engine.

Improper maintenance:

The life of an engine depends upon the conditions under which it operates, and the care it receives. Some applications, such as tillers, pumps and rotary mowers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear. Such wear, when caused by dirt, dust, spark plug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance, is not covered by warranty.

This warranty covers engine related defective material and/or workmanship only, and not replacement or refund of the equipment to which the engine may be mounted. Nor does the warranty extend to repairs required because of:

1. PROBLEMS CAUSED BY PARTS THAT ARE NOT ORIGINAL BRIGGS & STRATTON PARTS.
2. Equipment controls or installations that prevent starting, cause unsatisfactory engine performance, or shorten engine life. (Contact equipment manufacturer.)
3. Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel. (Use clean, fresh, lead-free gasoline and Briggs & Stratton gasoline stabilizer, Part No. 5041.)
4. Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (check oil level daily or after every 8 hours of operation. Refill when necessary and change at recommended intervals.) OIL GARD® may not shut down running engine. Engine damage may occur if oil level is not properly maintained. Read Operating & Maintenance Instructions.
5. Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Briggs & Stratton.
6. Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a non-original air cleaner element or cartridge. (At recommended intervals, clean and re-oil the Oil-Foam® element or the foam pre-cleaner, and replace the cartridge.) Read Operating & Maintenance Instructions.
7. Parts damaged by overspeeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation. (Clean fins on the cylinder, cylinder head and flywheel at recommended intervals.) Read Operating & Maintenance Instructions.
8. Engine or equipment parts broken by excessive vibration caused by a loose engine mounting, loose cutter blades, unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to engine crankshaft, overspeeding or other abuse in operation.
9. A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
10. Routine tune-up or adjustment of the engine.

Warranty is available only through service dealers which have been authorized by Briggs & Stratton Corporation. Your nearest Authorized Service Dealer is listed in the "Yellow Pages™" of your telephone directory under "Engines, Gasoline" or "Gasoline Engines," "Lawn Mowers," or similar category.

Briggs & Stratton Engines Are Made Under One Or More Of The Following Patents: Design D-247,177 (Other Patents Pending)

5,852,951	5,548,955	5,269,713	5,188,069	5,040,644	4,895,119	4,630,498	DES. 309,458
5,823,153	5,546,901	5,265,700	5,186,142	5,040,503	4,875,448	4,522,080	DES. 309,457
5,819,513	5,503,125	5,243,878	5,138,996	5,009,208	4,819,593	4,520,288	DES. 308,872
5,765,713	5,501,203	5,235,943	5,105,331	4,996,956	4,719,682	4,453,507	DES. 308,871
5,645,025	5,497,679	5,197,425	5,086,890	4,995,357	4,694,792	4,430,984	
5,642,701	5,320,795	5,197,422	5,070,829	4,977,879	4,684,917	4,355,253	
5,606,948	5,271,363	5,191,864	5,058,544	4,971,219	4,633,556		

In the USA and Canada, a 24 hour hot line, **1-800-233-3723,** has a menu of pre-recorded messages offering you engine maintenance information.

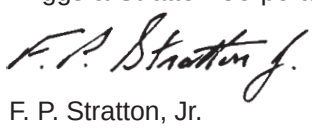
BRIGGS & STRATTON ENGINE OWNER WARRANTY POLICY
effective July 1, 1999

Replaces all undated Warranties and all Warranties dated before July 1, 1999

LIMITED WARRANTY

"Briggs & Stratton Corporation will repair or replace, free of charge, any part, or parts of the engine that are defective in material or workmanship or both. Transportation charges on parts submitted for repair or replacement under this Warranty must be borne by purchaser. This warranty is effective for the time periods and subject to the conditions provided for in this policy. For warranty service contact your nearest Authorized Service Dealer as listed in the 'Yellow Pages™' under 'Engines, Gasoline,' 'Gasoline Engines,' 'Lawn Mowers' or similar category. THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO ONE YEAR FROM PURCHASE, OR TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state."

Briggs & Stratton Corporation



F. P. Stratton, Jr.
Chairman and Chief Executive Officer

WARRANTY PERIOD

ENGINES	WITHIN U.S.A. AND CANADA		OUTSIDE U.S.A. AND CANADA	
	CONSUMER USE*	COMMERCIAL USE*	CONSUMER USE*	COMMERCIAL USE*
All Vanguard™ engines.	2 year – engine ‡			
All Diamond Plus®, Industrial Plus™, I/C® engines and sleeve bore Intek series.	2 year	1 year	2 year ‡	1 year
Quantum® and Diamond Power®.	2 year	90 days	2 year † ‡	90 days
All standard engines and Kool Bore™ Intek series installed on lawn mowers, riders, edgers, chippers, shredders, tillers, and all Sno/Gard engines.	2 year	90 days	1 year	90 days
All other standard engines and Classic™ series.	1 year	90 days	1 year	90 days

***** For purposes of this warranty policy, "consumer use" means personal residential household use by the original retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once an engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty. ***Engines used in competitive racing or on commercial or rental tracks are not warrantied.***

† One (1) year in Australia, New Zealand, Middle East and Africa.

‡ One (1) year in India.

NO WARRANTY REGISTRATION CARD IS NECESSARY TO OBTAIN WARRANTY ON BRIGGS & STRATTON ENGINES. YOU MUST SAVE THE PURCHASE RECEIPT. A PROOF OF PURCHASE DATE WILL BE REQUIRED TO OBTAIN WARRANTY.

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BRIGGS & STRATTON
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